



Saharan Cyclogenesis as seen from Mesoscale Modelling

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ABSTRACT: In order to study causes of long term rainfall variability in Northwest Africa in the framework of IMPETUS West Africa, typical rainfall events – extra tropical fronts, orographically triggered thunderstorms, advection of moist tropical air – were examined in detail using the *Lokalmodell* (LM) of the German Weather Service. One of the most interesting types of rainfall bearing phenomena are Saharan cyclones, which form usually in the lee of the Atlas Mountains. They have been subject to some studies in the past, because they may be connected with severe dust storms and strong rainfall even in the dry season. With their relatively small vertical extent, their short lifetime and – in most cases – their absence of a clearly visible cold front, they seem to be typical mesoscale cyclones. Nevertheless, a closer view shows that these cyclones are connected with strong inactive synoptic scale cold fronts. Multiscale interactions, i. e. thunderstorms occurring in the warm sector of Saharan cyclones, rapid movement and synoptic scale forcing makes them to interesting objects for mesoscale modelling. The convection parameterization – which has to be adapted to the mesoscale – as well as the nesting into initial and boundary data are very important for the development of Saharan cyclones in the model environment.